Response to Office Action Mailed October 18, 2005

A. Claims in the Case

Claims 50, 76, and 98-118 are rejected. Claims 50, 76, and 98-118 are pending. Claims 50 and 76 have been amended.

A. Double Patenting

Claims 76 and 109-118 were provisionally rejected under the judicially created doctrine of obvious-type double patenting as being unpatentable over claims 117-143 of copending U.S. Patent Application No. 10/832,469 in view of U.S. Patent No. 6,327,410 to Walt. Upon issuance of a patent for U.S. Patent Application No. 10/832,469 or the present application, or upon both applications being in condition for allowance but for the provisional double patenting rejection, Applicant will provide arguments for the inappropriateness of the double patenting rejection and/or provide a terminal disclaimer for the patent and/or patent applications.

B. The Claims Are Not Obvious Over Walt In View Of Felder, Chang, Or Ravkin Pursuant To 35 U.S.C. § 103(a)

The Examiner rejected claims 50, 76, and 98-118 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,327,410 to Walt et al. (hereinafter "Walt") in view of U.S. Patent No. 6,232,066 to Felder et al. (hereinafter "Felder"), U.S. Patent No. 6,350,620 to Chang et al. (hereinafter "Chang"), or U.S. Patent Application Publication No. 2003/0008323 to Ravkin et al. (hereinafter "Ravkin"). Applicant respectfully disagrees with that the claims are unpatentable over the cited art.

To reject a claim as obvious, the Examiner has the burden of establishing a *prima facie* case of obviousness. *In re Warner et al.*, 379 F.2d 1011, 154 U.S.P.Q. 173, 177-178 (C.C.P.A. 1967). To establish a prima facie obviousness of a claimed invention, all the claim limitations

must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974); MPEP 2143.03.

The Office Action states:

> Applicants' comments are not found to be persuasive because the Examiner is of the position that particles that are held within the cavities of the substrate by a polymer composition meet the instant claim language. That is, the polymer composition that is employed to hold the particles within the cavities constitutes a supporting member and since the particles are coupled to the substrate cavities using the polymer the particles must be "at least partially embedded" in the polymer composition that is cured, if not, they would not be capable of being held in the cavities. Note the reference of Felder et al. was not relied upon to address this specific claim limitation. The reference of Felder et al. was relied upon to address the use of particles of different shapes. (Office Action, page 6).

Amended claim 50 includes a combination of features including, but not limited to, the features of "curing the liquid composition to form a supporting member, wherein the sensing elements are at least partially embedded within the cured liquid composition, and wherein the sensing elements are disposed on or at an exterior surface of the cured liquid composition."

Amended claim 76 includes a combination of features including, but not limited to the features of "providing a sensor array comprising a plurality of sensing elements at least partially embedded within a supporting member comprising a cured liquid composition, wherein the sensing elements are disposed on or at an exterior surface of the cured liquid composition." Support for the amendments to claims 50 and 76 can be found in the Applicant's Specification at least on page 16, lines 9-15, which states:

> The sensing elements may be coupled to a supporting member. As described before the sensing element may be coupled to the supporting member during the formation of the sensing elements. In some embodiments, the sensing element may be coupled to a supporting member via crosslinking reactions that occur during formation of the sensing elements. The sensing elements may be coupled to the supporting member such that the sensing elements are disposed on or at an exterior surface of the supporting member.

Walt states:

> At least one surface of the substrate is modified to contain discrete, individual sites for later association of micro-spheres. These sites may comprise physically altered sites...such as wells...or chemically altered or active sites, such as chemically functionalized sites, electrostatically altered sites, hydrophobically/hydrophilically functionalized sites, spots of adhesive, etc. (Walt, column 5, line 61-column 6, line 3);
>
> Generally in this embodiment, the microspheres are non-covalently associated in the wells, although the wells may additionally be chemically functionalized as is generally described below, cross-linking agents may be used, or a physical barrier may be used, i.e. a film or membrane over the beads. (Walt, column 6, lines 42-47) (emphasis added);
>
> It should be noted that a key component of this invention is the use of a substrate/bead pairing that allows the association or attachment of beads at discrete sites on the surface of the substrate, such that the beads do not move. (Walt, column 7, lines 50-54); and
>
> The microspheres are then placed in wells 250 in step 276 according to a number of different techniques...Microspheres 10 may then be fixed into the wells 250 by using a dilute solution of sulfonated Nafion that is dripped over the end. Upon solvent evaporation, a thin film of Nafion was formed over the microspheres which holds them in place...This approach, however, can not be employed generically as Nafion is impermeable to most water soluble species. A similar approach can be employed with different polymers. (Walt, column 17, lines 47-66) (emphasis added).

Walt appears to teach a substrate with physically or chemically altered sites that associate with beads. Walt also appears to teach placing beads in wells and then using a thin film or membrane over the beads. Walt does not appear to teach or suggest placing sensing elements in a liquid composition and then curing the liquid composition to form a supporting member. Walt also does not appear to teach sensing elements that are disposed on or at an exterior surface of the cured liquid composition. Instead, Walt appears to teach positioning a film over the microspheres to hold them in the wells of the substrate. Applicant submits that Walt does not appear to teach or suggest at least the quoted features of the claim.

The Office Action states "Felder et al. was not relied upon to address this specific claim limitation [sensing elements that are at least partially embedded within the cured liquid composition]." Applicant agrees that Felder does not appear to teach or suggest at least the quoted features of the claim.

Furthermore, Chang does not appear to teach or suggest at least the quoted features of the claims. Chang states "resulting particles 12 are wedged in insert 10 due to their very small size. The insert 10 can be electrified with a negative change and the particles 12 can thus be attracted to a collection plate 12 that is electrified with a positive charge." (Chang, column 3, lines 43-47). Chang does not appear to teach or suggest placing sensing elements in a liquid composition and then curing the liquid composition to form a supporting member. Chang also does not appear to teach sensing elements that are at least partially embedded within the cured liquid composition.

Applicant also submits that Ravkin does not appear to teach or suggest placing sensing elements in a liquid composition and then curing the liquid composition to form a supporting member. Ravkin also does not appear to teach sensing elements that are at least partially embedded within the cured liquid composition

Applicant submits that the cited art does not appear to teach or suggest at least the quoted features of the claims. Applicant respectfully requests removal of the rejections to claims 50 and 76, and the claims dependent thereon.

Claim 98 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 98 includes the feature of "wherein forming a sensing element comprises polymerizing a monomer composition" in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 98. Applicant respectfully requests removal of the rejection to the claim.

Claim 99 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 99 includes the feature of "wherein placing the sensing element in a liquid composition

comprises placing the sensing elements at the surface of the liquid composition" in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 99. Applicant respectfully requests removal of the rejection to the claim.

Claims 100 and 109 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claims 100 and 109 include the feature of "wherein the sensing element comprises a polymer" in combination with the features of claims 50 and 76. Applicant submits that the cited art does not appear to teach all the features of claims 100 and 109. Applicant respectfully requests removal of the rejections to the claims.

Claims 101 and 110 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claims 101 and 110 include the feature of "wherein the sensing element comprises a polyethylene glycol hydrogel" in combination with the features of claims 50 and 76. Applicant submits that the cited art does not appear to teach all the features of claims 101 and 110. Applicant respectfully requests removal of the rejection to the claim.

Claim 102 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 102 includes the feature of "wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the receptor is configured to produce a signal when the sensing element interacts with the analyte during use" in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 102. Applicant respectfully requests removal of the rejection to the claim.

Claim 103 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 103 includes the feature of "wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a non-spherical shape" in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 103. Applicant respectfully requests removal of the rejection to the claim.

Claim 104 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 104 includes the feature of "wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol polymer" in combination with the features of claim *b*. Applicant submits that the cited art does not appear to teach all the features of claim 104. Applicant respectfully requests removal of the rejection to the claim.

Claim 105 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 105 includes the feature of "wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol diacrylate" in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 105. Applicant respectfully requests removal of the rejection to the claim.

Claim 106 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 106 includes the feature of "wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the receptor is coupled to an outer surface of the polymeric body" in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 106. Applicant respectfully requests removal of the rejection to the claim.

Claim 107 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 107 includes the feature of "wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the receptor is at least partially encapsulated within the polymeric body" in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 107. Applicant respectfully requests removal of the rejection to the claim.

Claim 108 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 108 includes the feature of "wherein forming the sensing element comprises coupling a

receptor to a polymeric body, and wherein the receptor comprises a nucleic acid" in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 108. Applicant respectfully requests removal of the rejection to the claim.

Claim 111 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 111 includes the feature of "wherein the sensing element comprises a receptor, and wherein the receptor is configured to produce a signal when the sensing element interacts with the analyte during use" in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 111. Applicant respectfully requests removal of the rejection to the claim.

Claim 112 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 112 includes the feature of "wherein the sensing element comprises a receptor coupled to a polymeric body" in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 112. Applicant respectfully requests removal of the rejection to the claim.

Claim 113 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 113 includes the feature of "wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a non-spherical shape" in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 113. Applicant respectfully requests removal of the rejection to the claim.

Claim 114 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 114 includes the feature of "wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol polymer" in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 114. Applicant respectfully requests removal of the rejection to the claim.

Claim 115 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 115 includes the feature of "wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol diacrylate" in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 115. Applicant respectfully requests removal of the rejection to the claim.

Claim 116 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 116 includes the feature of "wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor is coupled to an outer surface of the polymeric body" in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 116. Applicant respectfully requests removal of the rejection to the claim.

Claim 117 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 117 includes the feature of "wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor is at least partially encapsulated within the polymeric body" in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 117. Applicant respectfully requests removal of the rejection to the claim.

Claim 118 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 118 includes the feature of "wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor comprises a nucleic acid" in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 118. Applicant respectfully requests removal of the rejection to the claim.

D. Summary

Applicant submits that all claims are in condition for allowance. Favorable reconsideration is respectfully requested.

Applicant hereby requests a three-month extension of time. A Fee Authorization for the fees for a three-month extension of time and Request for Continued Examination is enclosed. Applicant believes no fees are due with the submission of this amendment and response. If any additional extension of time is necessary, Applicant hereby requests the appropriate extension of time. If any fees are inadvertently omitted or if any fees are required, please charge those fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account Number 50-1505/5119-07301/EBM

Respectfully submitted,

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